

IN THE CLAIMS

Please amend the claims according to the following listing, in which insertions are indicated by underlining, and deletions are indicated by strikethrough or double brackets. This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A transmission apparatus comprising:

a first rotatable member comprising a first rotatable shaft and at least one first rotatable element operatively attached to the first rotatable shaft;

a second rotatable member comprising a second rotatable shaft arranged in parallel with said first rotatable shaft, said second rotatable member further comprising a plurality of second rotatable elements operatively attached to said second rotatable shaft, said rotatable elements being greater in number than the number of rotatable elements of said first rotatable member;

a slide mechanism arranged between said first rotatable shaft and said first rotatable member enabling said first rotatable member to be moved axially relative to its rotating center line, wherein said slide mechanism comprises an inner sleeve, an outer sleeve coaxially surrounding said inner sleeve, and a plurality of bearing elements disposed between said inner and outer sleeves;

an endless linking loop interconnecting said first rotatable member and said second rotatable member to transmit rotation therebetween; and

a gear shift mechanism for positioning said endless transmission linking loop among said predetermined number of said second rotatable elements for a transmission operation;

wherein said endless linking loop is applied over said first rotatable member and said second rotatable member in parallel with a plane crossing a center line of said first rotatable shaft at a right angle.

2. [Canceled]
3. (Currently amended) The transmission apparatus of claim 1 [[2]], wherein said slide mechanism comprises a ball spline mechanism.
- 4 [Canceled]
5. (Currently amended) The transmission apparatus of claim 1, further comprising a hollow case housing said first and second rotatable elements and said linking loop.
6. (Currently amended) A bicycle comprising the transmission apparatus of claim 1.
7. (Currently amended) The transmission apparatus of claim 1, wherein said linking loop is a chain, wherein said first rotatable element comprises a sprocket, and further comprising a chain guard adjacent said sprocket of said first rotatable element.
8. (Currently amended) A transmission apparatus comprising:
 - a first rotatable member comprising a first rotatable shaft and at least one first rotatable element driveably connected to the first rotatable shaft;
 - a second rotatable member comprising a second rotatable shaft arranged in parallel with said first rotatable shaft, said second rotatable member further comprising a plurality of second rotatable elements greater in number than that of said first rotatable member;
 - an endless linking loop interconnecting said first rotatable member and said second

rotatable member to transmit rotation therebetween;

a gear shift mechanism for positioning said endless transmission linking loop among said predetermined number of said second rotatable elements for a transmission operation;
and

a slide mechanism comprising a ball spline mechanism, wherein said slide mechanism is arranged between said first rotatable shaft and said first rotatable member enabling said first rotatable member to be moved axially relative to its rotating center line, and said wherein first rotatable member is connected to said first rotatable shaft through said slide mechanism.

9. (Currently amended) The transmission apparatus of claim 8, wherein said slide mechanism comprises an inner cylinder surrounding the first rotatable shaft and having an outer circumferential surface, and an outer cylinder arranged coaxially outside the inner cylinder and having an inner circumferential surface;

[[a]] and wherein said ball spline mechanism comprises:

a plurality of inwardly facing storing grooves formed in the inner circumferential surface of the outer cylinder,

a plurality of outwardly facing storing grooves formed in the outer circumferential surface of the inner cylinder and aligned with the inwardly facing storing grooves of the outer cylinder, and

a plurality of ball bearings disposed in each of the storing grooves between the inner and outer cylinders.

10. (Currently amended) The transmission apparatus of claim 8, wherein said slide mechanism comprises an inner sleeve, an outer sleeve coaxially surrounding said inner sleeve, and a plurality of ball bearings disposed between said inner and outer sleeves.

11. (Currently amended) The transmission apparatus of claim 8, further comprising a hollow case housing said first and second rotatable elements and said linking loop.

12. (Currently amended) A bicycle comprising the transmission apparatus of claim 8.

13. (Currently amended) The transmission apparatus of claim 8, wherein said linking loop is a chain, wherein said first rotatable element comprises a sprocket, and further comprising a chain guard adjacent said sprocket of said first rotatable element.

14. (Currently amended) A transmission apparatus for a bicycle provided with a derailleur comprising:

a derailleur shaft supported at a supporting member arranged at a body frame, and formed with a slotted hole therein which functions as a guide part, said derailleur shaft having a cylindrical bore formed therein for receiving an operating element;

a derailleur arm movably supported at said derailleur shaft;

a rotatable guide member rotatably supported at said derailleur arm and having an endless transmission linking loop wound around among a plurality of rotatable elements constituting a transmission rotatable member; and

an operating element which is substantially columnar and which fits into the cylindrical

bore of the derailleur shaft, wherein said operating element is provided for rotating pivotally moving said derailleur arm in respect to said derailleur shaft by moving while being guided by said guide part in response to a transmitting operation and at the same time translating said derailleur arm toward a central axis line of said derailleur shaft characterized in that:

said derailleur shaft is supported in such a way that said central axis line becomes in parallel with a rotary center line of the rotatable guide member and a rotary center line of the transmission rotatable member.

15. (Currently amended) A transmission apparatus for a bicycle according to Claim 14, wherein said derailleur shaft is rotatably supported at said supporting member; said derailleur has a balancing spring to cause a balancing torque balanced with a torque acted from said derailleur arm to said derailleur shaft to be acted against said derailleur shaft; and said balancing torque is based on a spring force generated at said balancing spring through ~~rotation~~ pivotal movement of said derailleur shaft accompanied by a ~~rotation~~ pivotal movement of said derailleur arm.